



Transforming The Army's Light Forces . . .

THE JOINT CONTINGENCY FORCE ADVANCED WARFIGHTING EXPERIMENT

Van E. Brewer

Introduction

By incorporating experimentation and information technology enablers, the Joint Contingency Force Advanced Warfighting Experiment (JCF AWE)—which will be executed in September 2000 at the Joint Readiness Training Center (JRTC), Fort Polk, LA,—will pave the way for more mobile, lethal, survivable, and responsive Army forces. In particular, the JCF AWE will focus on the “light-axis” component of the Army Experimentation Campaign Plan (AECPP), an ongoing experimental process for rapid technology and operational concept integration. The JCF AWE will take lessons learned and core systems from earlier AECPP events (Task Force XXI and the Division AWE in 1997) and add capabilities such as the Enroute Mission Planning

and Rehearsal System (EMPRS) and Land Warrior (see article on Page 7 of this magazine).

The JCF AWE will employ a Digitized Light Infantry Brigade Task Force (centered on the 1st Brigade, 10th Mountain Division) that will be equipped and trained to execute contingency force operations. Ultimately, future digitized divisions and the Interim Brigade Combat Team will further contribute to the Army's transformation.

Experimentation

The AECPP's principal focus is gaining insight into potential improvements in doctrine, organization, training, materiel, personnel and leader development (DOTMPL) that are made possible by technology enablers. The AECPP combines

materiel development with operational experimentation; in doing so, systems are developed and fielded in less time but with more operational focus. The AECPP, which focuses on the Army's major and supporting commands, formulates an operational hypothesis describing the expected impact of emerging technologies on warfighting capabilities and then creates a real-world laboratory environment to assess the hypothesis and determine its impact across the DOTMPL spectrum. These results are fed back into the development process, a process known as “spiral development,” which has been demonstrated in major exercises to date and will continue to support the ongoing transformation of the Army into the future.

An AWE is based on a hypothesis, which guides the capabilities to be

examined, the design of the experiment, and the development of the assessment methodology. The JCF AWE hypothesis is as follows:

IF knowledge-based battle command capabilities, gained through enhanced digital connectivity and new equipment, exist across the DOTMPL areas during JCF operations,

THEN JCFs will achieve increases in lethality, survivability, and operational tempo.

Supporting objectives are then derived to provide additional detail for structuring the experiment. The JCF AWE supporting objectives are:

- *Command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR).* Improve joint C4ISR effectiveness and efficiency through digitization, enhanced communications, and joint interoperability of systems, processes, and procedures.
- *Military Operations in Urban Terrain (MOUT)* (see article on Page 13 of this magazine). Enhance JCF ability to execute operations in urban and restrictive terrain.
- *Early Entry.* Enhance JCF ability to plan and conduct forced and early entry operations.

The U.S. Army Training and Doctrine Command (TRADOC) Battle Labs submit initiatives and arguments supporting these objectives, which are assessed by integrated process teams (IPTs) for inclusion into the JCF AWE. Additional IPTs work to develop scenarios, force structures, assessment plans, and all required components to execute a real-world experiment to demonstrate and employ, assess, or gain insights against the key supporting objectives.

While the focus of the JCF AWE will be on the AECF's light axis, the heavy axis experimentation process will continue with the Division Capstone Exercise (DCX) in FY01, in which the 4th Infantry Division (Mechanized) (commonly known as the 4th ID(M)) will incorporate updated versions of the Army Battle Command System (ABCS) and the

Force XXI Battle Command Brigade and Below (FBCB2). The DCX will be followed by the Corps AWE, scheduled to be executed by III Corps in FY03.

Digitization

Core systems build on and extend the architectures of earlier AWEs. Battlefield functional area and foundation systems provide enhanced capabilities across the battlefield operating systems (maneuver, fire support, intelligence, air defense, mobility, logistics, etc.). By extending digitization to below brigade, FBCB2 will provide digital capabilities for vehicles. Furthermore, for the first time in a large-scale experiment, the JCF AWE will include a significant surrogate dismounted FBCB2 capability, providing an opportunity to examine the impact of digitization at the individual soldier level. All of these systems are linked together via a Tactical Internet comprised of radios, routers, and networks providing data throughout the task force. In total, the AWE system architecture will take the digitized capabilities of the 4th ID(M), adapt them to dismounted operations, and extend them to accommodate light-force requirements.

The EMPRS represents a new capability for contingency forces. This system, characterized as "ABCS-on-the-fly," will link the aircraft carrying forced and early entry forces to each other and to JTF HQ. By extending the Tactical Internet to this phase of the mission, JTF HQ will be able to pass updated intelligence and orders to the commander en route, as well as provide the ground feed to the common operating picture. The task force will then use its ABCS over a "flying local area network" to update, modify, and rehearse plans. Although the EMPRS is not an objective system, its use highlights the purpose of experimentation—using surrogate capabilities to determine the operational impact of new technology.

The Land Warrior, provided to a platoon of the 3-325 Infantry, 82nd Airborne, will participate in the forced-entry and MOUT phases of the JCF AWE. Land Warrior includes a modular weapon

system (to include pointing lasers and advanced sights), laser rangefinder, digital compass, and daylight digital sight; a day and night helmet-mounted display of computer and sensor inputs; night vision capability; protective clothing and individual equipment enhancements (body armor and chemical equipment); and an individual soldier computer/radio. Participation in the forced-entry and MOUT phases of the JCF AWE will provide an early look (prior to customer acceptance tests) at a key light-force modernization effort in a realistic free-play force-on-force environment and a night assault event. The JCF AWE will provide a venue to assess the system's potential to increase the lethality and survivability of the dismounted soldier.

The JCF AWE will also examine 54 distinct initiatives from across the spectrum of light-force operations. These initiatives range from simulations of new weapon systems, to products and systems as varied as mobile kitchens and ration heating systems, to display windowing systems for the commander's information center. Here again, the JCF AWE will provide the opportunity to use surrogate or limited numbers of actual systems, or simulations of new systems, permitting the assessment of operational impacts in a large-scale, free-play, realistic environment. This will allow future development of these systems to be more closely tied to warfighter requirements.

Finally, the JCF AWE will be executed in coordination with the Millennium Challenge, the Joint Forces Command exercise that will test the environment for large-scale cooperative experimentation. During the Millennium Challenge, all Services will conduct exercises within the same timeframe as the JCF AWE—the Navy Fleet Battle Experiment-Hotel, the Marine Corps Millennium Dragon, and the Air Force Joint Expeditionary Force. JTF HQ, initially designated JTF-2 as the Second Fleet commands during the first phase of Millennium Challenge, will hand off command to JTF-XVIII at Fort Bragg, NC, with the Joint Force Air Component

Commander remaining onboard the *USS Mount Whitney*. For the execution of the forced and early entry missions, the Global Command and Control System, ABCS, and EMPRS will link Fort Polk, en route aircraft, Fort Bragg, and the *USS Mount Whitney* in a large-scale demonstration of joint interaction.

Execution

As noted earlier, the JCF AWE will equip and train a Digitized Light Infantry Brigade Task Force (centered on the 1st Brigade, 10th Mountain Division) with XVIII Corps and 4th ID(M) components, to execute forced and early entry operations. Four main “fights” will be executed: forced and early entry using EMPRS; the digitized brigade fight with the bulk of information technology enablers; the dismounted digital fight centered around ABCS, dismounted FBCB2, and Land Warrior; and the overarching joint execution of Millennium Challenge. Each fight will provide the environment—working systems, trained soldiers, and a tactically realistic scenario—to support a credible assessment of each system’s operational impact.

Following execution of the forced entry using the EMPRS, the 3-325 Infantry will execute a battle handover to the 1st Brigade Task Force, which will execute a typical series of JRTC engagements to allow for baseline comparison. This includes search and attack, defend, low-intensity conflict, and MOUT, including Land Warrior participation in several phases. Using a cost-efficient architecture, only nine of the tactical operations centers (TOCs) involved will be functioning as rolling TOCs. The balance will operate from fixed sites or from buildings, providing the surrogate capability to examine the effects of information technology enablers while minimizing the development and infrastructure costs for the experiment.

An auxiliary simulation environment, augmenting the normal capability used at JRTC, will be integrated with the live fight to extend the size of the forces involved, implement the effects of initia-

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tives used solely in simulation, and enhance the fidelity of representation. This federation of simulations includes JANUS (a computer simulation that models large-scale warfighting engagements), the extended air defense simulation, and field artillery simulation; and is integrated with the ABCS to provide direct sensor feeds, situational awareness messages, and over-the-air integrated simulation of artillery messaging.

The TRADOC Analysis Center at White Sands Missile Range, NM, is leading the analytical effort in preparation for the JCF AWE. This effort coordinates the complex interaction of initiatives, scenario development, instrumentation, data collection, and analysis to achieve the goals of the JCF AWE.

Conclusion

The AECF was initiated to reduce the Army’s development cycle to keep up with the accelerated pace of commercial innovations, within fiscal limitations, and in doing so support the Army’s continuous adaptations to new missions in a dynamic geopolitical environment. The JCF AWE highlights this process, bringing together information technology, the materiel developer, and the warfighter. This team of industry, civilian, and military personnel has created a laboratory environment for the Army to gain critical operational insights before investing heavily in additional development.

The spiral development process has enabled the Army to develop major new software capabilities in the space of a few years instead of decades, in a way that allows the swift development of operational and organizational concepts with new, significant capabilities. Successful execution of the JCF AWE will provide the materiel and operational foundations for further transformation of the Army, ensuring that future warfighters have state-of-the-art technological capabilities and the operational know-how to employ them—reaching the goal of overmatching combat power across the spectrum of Army missions.

VAN E. BREWER, an employee of Computer Sciences Corp., supports the JCF AWE program management effort in TRADOC’s Joint Venture Directorate. He has a B.A. in physics from the University of Tennessee at Knoxville and an M.S.E.E. from the University of Alabama at Huntsville.
